



GARY R. HERBERT  
*Governor*

GREGORY S. BELL  
*Lieutenant Governor*

# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
*Executive Director*

### Division of Oil, Gas and Mining

JOHN R. BAZA  
*Division Director*

September 13, 2010

Kevin Butters  
Towers Sand and Gravel, LLC  
760 North Harrisville Road  
Harrisville, Utah 84404

Subject: Third Review of Notice of Intention to Commence Large Mining Operations, Towers Sand and Gravel, LLC, Towers Sand and Gravel Quarry, M/057/0006, Weber County, Utah

Dear Mr. Butters:

The Division has completed a review of your response to our September 21, 2009, review of your Notice of Intention to Commence Large Mining Operations for the Towers Sand and Gravel Quarry Mine. The attached comments will need to be addressed before tentative approval may be granted. I apologize for the time it has taken to complete this review.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address only those items requested in the attached technical review by sending replacement pages of the original mining notice using **redline and strikeout** text. After the notice is determined technically complete and the Division is prepared to issue final approval, we will ask that you send two clean copies of the complete and corrected plan. Upon final approval of the permit, one copy, stamped approved, will be returned for your records.

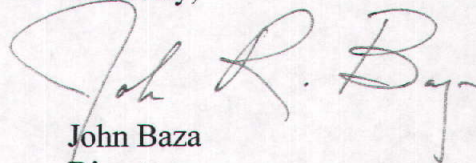
The Division is working to revise the reclamation contract and Attachment A forms to allow the Trust Deed you filed June 25, 2009, to serve as a collateral surety until there is adequate detail in the plan to calculate a surety amount.



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Questions about the appraisal process should be directed to Paul Baker, Minerals Program Manager, at (801) 538-5261, or to Dana Dean, P. E., Associate Director of Mining, at (801) 538-5320. Thank you for your cooperation.

Sincerely,

A handwritten signature in cursive script, reading "John R. Baza". The signature is written in dark ink and is positioned above the printed name and title.

John Baza  
Director

Attachment: Review

cc: Paul Baker, DOGM  
Steve Alder, AG's Office  
Pleasant View City

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**THIRD REVIEW OF NOTICE OF INTENTION  
TO COMMENCE LARGE MINING OPERATIONS**

**Towers Sand and Gravel, LLC  
Towers Sand and Gravel Quarry  
M/057/0006  
August 25, 2010**

**General Comments:**

In responding to this review, PLEASE submit revised pages and maps for the original Notice of Intention (NOI). Use redline/strikeout (or other similar type of highlighting) to show corrected text. Please use Form MR-REV to document the changes made, whether they are replacing, removing or adding pages and/or maps. This form is available on the Division's web page at:  
<http://www.ogm.utah.gov/minerals/MINERALSFORMS.htm>)

Your response to our last review may have clarified questions the reviewer had, but failed to correct the NOI. Until changes are made in the NOI, the Division cannot approve your operation. As stated in correspondence, once the NOI is properly revised and is ready to approve, the Division will ask you to send two 'clean' copies. These will be stamped approved, and one copy will be returned to you for your official record and future amendments.

Additional comments from the Division can be generated in the future based on submittals received in the future.

**R647-4-104 – Operator's, Surface and Mineral Ownership**

**LAST REVIEW COMMENTS:**

*Two operators are listed for this mining operation, Towers Sand and Gravel LLC and C. E. Butters Realty and Construction, Inc. "Towers Sand and Gravel LLC" is not registered with the Division of Corporations, but "Tower Sand and Gravel LLC" is. While this is probably a typographical error, it needs to be corrected, either with the Division of Corporations or on the application.*

*As per the definition of an operator (see Rule R647-1-106, which states in part):*

*"... any natural person, corporation, association, partnership, receiver, trustee, executor, administrator, guardian, fiduciary, agent, or other organization or representative of any kind, either public or private, owning, controlling, conducting, or managing a mining operation or proposed mining operation."*

*Your response stated that the operation is a 'joint venture or partnership'. Please register the joint venture or partnership with the Division of Corporations. We cannot issue one permit to two different operators for the same project.*

**RESPONSE COMMENTS:**



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The operator has specified that Towers Sand and Gravel LLC is the primary operator and permittee, and C.E. Butters Realty and Construction is a secondary operator. Towers Sand and Gravel is now registered with the Division of Corporation. **This comment is adequately addressed.**

#### **R647-4-105 - Maps, Drawings & Photographs**

##### **LAST REVIEW COMMENT:**

###### **General Map Comment:**

*The following needs to be shown (provided) on all maps: Map Title and number; a north arrow; map scale; Township, Range, and Section(s); permit (bonded) area. The map scale needs to be of sufficient size to measure the details accurately. For the location map, a scale of 1 inch to 2000 feet is recommended. For general maps (such as the soils map, vegetation map, reclamation treatments map, drainage map, mine sequencing, etc.) a scale of 1 inch to 400 feet is recommended. For detailed maps (i.e. facilities), a scale of 1 inch to 200 feet is recommended. Maps need to be clear. Generally, Google Maps do not provide the clarity needed when they are enlarged to the appropriate scale.*

##### **RESPONSE COMMENTS:**

###### **General map comments:**

Maps provided are difficult to impossible to use. They lack clarity, are incomplete, do not have proper legends, do not follow standard scaling, have color schemes that make it difficult or impossible to identify the features needed on the maps, are overlain on aerial photography of questionable quality (Google maps), or data is presented in a format that makes measurements impossible (skewed 3-D illustrations). Highlight and text colors on labels need to have contrast—suggest not having a background or highlighted shade.

The Division realizes that more than one map is needed to identify all features, plans, topography, etc. This is a major reason why it is important to have maps of the same (or at least standard) scales so comparisons between maps can be easily made when a reviewer needs to look at items that may be on two or more different maps.

On April 09, 2008, a set of maps was provided to Paul Baker that were prepared by Landmark Surveying. Please consider using these maps, updating them as appropriate to meet mapping requirements.

Note, every map should have the following: a north arrow, a scale, location (township, range, section/subsection lines), and the permit/bonded area boundary. Specialty maps that show just a small portion of the permit area should have an inset or other marker to identify the location relative to the permit area. Contour lines showing existing contours as well as post mining or reclamation contours need to extend beyond the permit boundary sufficiently to determine how they blend in with surrounding slopes, terrain, etc. Cross sections need to show both vertical and horizontal scale (preferably without any vertical exaggeration). All features on the maps need to be clearly labeled. Lines on the maps need to be labeled or included in the legend; it is not known what most of them refer to. The maps should show general locations of portable/temporary features (such as crushers, stackers, etc.) but should also be accompanied by a detail drawing.



Comments under 105.1, 105.2, 105.3 deal primarily with maps. Because of the numerous problems with the current maps, rather than referencing each map under each heading, the comments made are specific to the map identified. Note, many of the maps have the same, or related comments, and these comments have been summarized in the General Map Comments listed above.

105.1 Topographic base map, boundaries, pre-act disturbance

*LAST REVIEW COMMENT:*

*Provide a topographic base map (scale 1 inch=2000-feet) which shows property boundaries of surface ownership of the permit and adjacent areas; any perennial streams and other bodies of water; roads, buildings, electrical transmission lines, water wells, oil and gas pipelines, boreholes or other existing surface or subsurface facilities within 500 feet of the proposed operations; proposed or existing access routes from the nearest publicly maintained highway; and known areas which have been previously impacted by mining within the proposed disturbed area.*

105.2 Surface facilities map

*Provide a surface facilities map (scale 1 inch=200 feet) that shows all existing and proposed surface facilities, including buildings, stationary mining/processing equipment, roads, utilities, power lines, drainage control structures, topsoil storage areas, tailings or processed waste facilities, overburden disposal areas, and any solid and liquid wastes and wastewater discharge treatment and containment facilities. This map should also show the boundary of the proposed 5-year permit and bonded area. Identify and describe each of these facilities in the legend for this map.*

105.3 Drawings or Cross Sections (slopes, roads, pads, etc.)

*Drawings C-1 thru C-3 lack appropriate legends, scale, north-arrows, etc. Some are skewed, making them difficult or impossible to use. Cross sections (drawings C-4 thru C-11) also lack appropriate legends, scale, tick marks on axis, etc. Each cross section appears to be of a different scale than the others, making it difficult to correlate. Cross sections appear to show only two surfaces, existing and proposed. Please show existing topography, proposed mining topography and the proposed reclamation topography. Cross sections should all be of the same scale. Please keep horizontal and vertical scale the same. but if there is a vertical exaggeration of scale, please indicate the maximum slope angle on each line section. Please provide one long section that is parallel to the highwall and direction of mining advancement and a multiple cross sections that are perpendicular to the long section spaced every 400 feet. All cross sections need to begin before, and end after the proposed mining disturbance.*

*Drawings D-2 and D-3, storm water drainage, should show run-on and run-off patterns for flows entering or leaving the site. These drawings also need to show the watershed boundaries, surface controls, ponds, culverts, springs, etc. Also, please provide a copy of your approved Storm Water Pollution Prevention Plan.*

RESPONSE COMMENTS:



The map provided on page 9, which identifies the surface owners for the permit and adjacent areas is sufficient for surface ownership purposes. However, do these same individuals own the subsurface (mineral) estate? If not, please provide the mineral owners as well.

Appendix A:

This map should be titled 'General Location Map,' not Regional Map.

Resize to standard scale - recommend 1"=1000'.

Provide date and source of aerial photo.

Move scale and location label outside the permit area, so what is under this label can be seen.

Show location of township, range, section, subsection markers.

Label and show all power lines, canals, pipelines, roads, facilities, structures, communication equipment, etc. within and adjacent to the permit area.

Appendix B:

Identify and label all facilities and structures.

Show location of township, range, and section/subsection corners.

Move scale, location label outside of permit area.

Provide date and source of aerial photo.

Color scheme for map label is very difficult to read - see general map comments.

Appendix C1:

Identify and label all facilities and structures.

Show location of township, range, and section/subsection corners.

Move scale, location label outside of permit area.

Map needs to show entire permit area.

Scale is okay.

Provide date and source of aerial photo.

Map C2:

Identify and label all facilities and structures.

Show location of township, range, and section/subsection corners.

Move scale, location label outside of permit area. Clearly show the permit area boundary.

Map needs to show entire permit area, or show match line with additional map that shows remainder of permit area.

Provide date and source of aerial photo.

Map label difficult to read - change color scheme - see general map comments.

Map C3:

Identify and label all facilities and structures.

Show location of township, range, and section/subsection corners.

Move scale, location label outside of permit area.

Map needs to show entire permit area, or show match line with additional map that shows remainder of permit area.

Clearly identify the permit area boundary.

Provide date and source of aerial photo.

See general map comments regarding map label.



Map C4:

Equipment list should identify on the map, to the extent possible the location of equipment listed. (loaders, excavators, bulldozer, service trucks do not need to be identified on the map).  
Identify and label all facilities structures, stockpiles, etc.  
Show location of township, range, and section/subsection corners.  
Provide scale and legible north arrow.  
Provide date and source of aerial photo.  
Need detailed plans and surety before the 'future' asphalt plant and concrete plant can be approved.

Appendix D:

- (item #1) Please provide clean copy of this map. While it is currently available on the County's web page, there is no guarantee it will be available at some future date.
- (item #5) Please explain how grade widths (generally interpreted as contour intervals) have anything to do to accommodate fire and communication tower access roads.
- (item #6) Need typical cross section of rock catchments and dimensions, including width, depth length, and spacing.

Map D2:

Please use standard engineering practices in producing maps of this nature.  
Avoid the use of color shading (background).  
Contours need to be extended beyond the permit boundary sufficiently to identify the current grades, and other topographic features of the surrounding area.  
Map needs to be of a standard scale (i.e. 1"=200' or 400').  
Identify the contour interval, and show the current and proposed disturbed area boundaries.

Map D3:

See comments regarding Map D2.  
In addition, contour lines on this map are not complete. For what is presented, it may adequately show the intended grade of the pit area, but fails to provide any contour of the slope.

Map D4:

Refer to comments on maps D2 and D3

Maps D5 and D6:

These maps provide a general concept of the current future look of the site, but they do not allow measurement/verification of grades, slopes, and other topographic features. Please provide a quality, 2-D topographic map of the permit and adjacent areas (it is suggested that a minimum area of 250 – 500 feet outside of the permit area boundary be shown).

D7-D13:

Cross section drawings D7 thru D13 appear to be of adequate location and density. However, the following needs to be added to each of these cross-sections:  
Tick marks showing the distance intervals on the horizontal and vertical scale lines.  
Provide the vertical and horizontal scale (i.e. one inch equal ? feet).



Each of these drawings identify a line in the legend that is labeled 'Substrata'. Yet not a one of these drawing show this feature.

As previously mentioned, typical cross sections of the catchment basins and diversion structures are needed.

Map E1:

Different vegetation types or communities exist. The map provided does not show this. Need scale on this map ( map may be drawn at a scale of 1"=400' as used on map F1). See General Map Comments regarding label.

Map F1:

See comments on Map E1. Need only one of these maps (map E1 or F1). Aside from providing an appropriate scale and photo locations, this map still does not show boundaries of different vegetation types or communities.

Photos/Reports:

Photo labels F2 thru F6 and reports F7, F8 and F9 are very difficult to read due to color scheme.

Maps G1 and G2:

Refer to general map comments: use standard engineering scales; legends should not be within the map area; need date of map.

Map G3:

Use standard scale.  
Are there water rights associated with this spring? If so, who holds those rights?  
How will they be protected?  
Label difficult to read due to color scheme.

Map H1:

Remove reference to 'urban areas' until such time as they are approved.  
Why are there 1h:1v slope areas to the east, and especially to the south - which is not a rock slope?  
The slopes depicted on this map do not match with post mining contours shown on map D6 or cross sections D9 thru D12.  
The layer for the communication towers and roadways are apparently underneath the slope layer and cannot be seen.

Maps X1-X4:

Please provide a schematic diagram showing how maps X-1 thru X-4 fit together. Also, a north arrow is needed on these maps.

**R647-4-106 - Operation Plan**

106.3 Estimated acreages disturbed, reclaimed, annually.  
LAST REVIEW COMMENT:



*The property ownership map and description of properties (on pages 8-12 of the NOI) identify 100.87 acres. Page 15 of the NOI and your response to the Division's review state that there is 141.87 acres that will be affected by this mining operation. This is a difference of 41 acres. Please show where this acreage is and provide the mineral and landownership information.*

*Page 15 says 141.87 acres will eventually be affected by the mining operation, and states that no more than 50 acres will be disturbed at any one time. Please identify on an operations map the initial 50-acre block that will be mined and bonded, as well as the sequence or phasing of mining operations for the entire 141.87 acres. Currently there are 44 acres of disturbance and you plan to disturb an additional 4 acres annually. Please note, that until final reclamation is determined to be successful, all areas disturbed by mining (including areas that have been reclaimed) will be part of the disturbed and bonded area. Since vegetation must be established and have survived 3 growing seasons before the Division can give final release, the minimum acreage the Division can consider for your operation and bond is 56 acres. Please correct the appropriate references in the NOI.*

*Please provide specific maps and plans that show the current disturbance as well as the proposed (planned) mine development for the next 5-year period. Include changes to all mining related disturbances (clay pit, highwall, pit floor, stockpiles, topsoil stockpiles, roads, facilities, etc, and areas that will receive reclamation treatments).*

RESPONSE COMMENT:

Conflict still exists between property description acreage for parcels A-D and the estimated acreage shown in the table under 106.3 (which appears to be correct, showing 141.87 acres). While the Division does need to know the names and addresses of the landowners of the lands to be affected by the operation, we do not need the acreage or property descriptions of said lands. The acreage figures needed are the estimated acreages to be disturbed and/or reclaimed on an annual basis, and the total permit and bonded area acreage. It is suggested that the property descriptions for parcels A-D (pages 10-15) be removed, and replaced with just the name and address information as provided for the adjacent land owners.

Maps X-1 thru X-4 appear to be land ownership plats. They need to be labeled as such.

106.5 Existing soil types, location, amount

LAST REVIEW COMMENT:

*The NOI says approximately 25,000 cubic yards of soil are necessary to revegetate 50 acres under the worst case scenario, but with a minimum of 6 inches of soil coverage, it would take in excess of 40,300 cubic yards of soil. Without soil survey and lab analysis, one cannot determine the extent of the soil resource (volume), the suitability of the soil for reclamation, or what, if any soil amendments or fertilizer may be needed to re-establish a vegetation cover. Therefore, please provide the following information regarding soil resources:*

- Results of an Order 3 Soil Survey and soils map which classifies the different soil resources on site, including average depth of the A, B and C horizons, soil texture classification, and suitability class.*
- A map (or maps) showing the locations of where soil materials have been salvaged from, where they will be salvaged from, and where soils will be applied during reclamation*



*activities. This needs to include the proposed depth of soil salvage and the proposed depth of replacement. The soils map also needs to show the location(s) of where soil samples were taken.*

- The results of a lab analysis of each soil type to be disturbed, which includes the following parameters: pH; sodium adsorption ratio; electrical conductivity; % organic matter; texture including coarse fragments; cation exchange capacity; total nitrogen; nitrate nitrogen; phosphorus (as  $P_2O_5$ ) and potassium (as  $K_2O$ ).*

*Once the soil resources are properly identified and quantified, it will be necessary to re-write the soils section of the NOI to conform with the soils data.*

RESPONSE COMMENT:

Soil resource information (volumes) is based on an assumption that 3 inches of soil is available for salvage. There is no basis for assumption of the 3-inch depth. With the exception of the soil analysis, these comments have not been addressed.

To evaluate the soil resources, impacts to the soils, and to assure appropriate volumes of soil materials are salvaged and re-applied for reclamation, and to determine the types and rates of fertilizers and/or soil amendments that may be needed, this information needs to be provided.

Page F-8 is a lab analysis for one soil sample. This analysis shows that the material tested would be suitable for reclamation. There is no indication as to where this sample came from. Is it from the previously stockpiled materials, and if so, which stockpile? Is the soil from a single spot, or is it a blended sample from several locations? Are the soils in the existing stockpiles similar to each other (same soil type)? Without this information, the lab analysis is of little value.

Two of the three topsoil stockpiles identified on page 19 are shown on map 3-C. Please show the location of the third topsoil stockpile. Where will the future salvaged topsoil be stockpiled? Please show these locations on a map as well.

106.7 Existing vegetation - species and amount

LAST REVIEW COMMENT:

*While some vegetation information was provided, there was no discussion on how the data was obtained, or where the data was collected. It appears from the photos that the areas that were sampled were previously disturbed and are not representative of the premining vegetation.*

RESPONSE COMMENT:

This comment apparently was not addressed. The limited data does not adequately describe the vegetation resources. Attached to this review is a vegetation summary from data collected in the general area of this mine. Data was collected by a professional biologist and was determined to be representative of the of pre-mining vegetation. It is suggested that you incorporate this data into your plan. Otherwise please retain the services of a professional biologist to collect representative data for your operation.

106.8 Depth to groundwater, extent of overburden, geology

LAST REVIEW COMMENT:



*Appendix D shows a spring within the permitted area. Please describe how this spring will be protected from mining impacts. Given that there are several faults in the area, it is likely the spring is related to the faulting rather than a perched aquifer as you have suggested. To fully understand this spring, and potential impacts to groundwater, it is imperative that you provide basic geologic information for the permit area, including a description of the geology, a geologic map and cross sections.*

**RESPONSE COMMENT:**

This comment is adequately addressed.

**106.9 Location and size of ore and waste stockpiles, tailings and treatment ponds.**

**NEW COMMENTS:**

Please rework the second and third sentences in this section to clarify what your intentions are. As currently presented, ("Mining grades and reclamation grades are within 2 feet. Areas will be mined suitable material topped with 3" of topsoil will be spread in areas that are not solid rock."), there appears to be something missing. Certainly, it is not understood what you are doing.

Between 106.9 and 109.1 in your submittal, you have 5 points under the heading: IV. R647-4-17- Operation Practices. This is apparently a improper rule citation since there is no rule R647-4-17. This information should be placed under R647-4-106.2

**R647-4-109 - Impact Assessment**

**General Impact Assessment comment:**

Impacts to environmental resources currently exist and will continue to exist at least until the site is fully reclaimed. Some impacts may be permanent, and appropriate mitigation is expected. Under each rule below, please provide a discussion of the current and projected (or continued) impacts to the various environmental resources. If there is no impact to the resource, please provide an explanation as to why there is no impact on that particular resource.

**109.1 Impacts to surface & groundwater systems**

**LAST REVIEW COMMENT:**

*Please include a general narrative description identifying potential surface and/or subsurface impacts to the hydrologic resources. This description will include, at a minimum, projected impacts to surface and groundwater systems. Will the spring be impacted? What measures are being taken to assure the spring is not impacted, or provide appropriate mitigation for impacts to this spring?*

**RESPONSE COMMENT:**

Please describe how "the seep/spring will be relocated as necessary" to minimize impacts to this resource. The plan needs to identify established water rights within 500 feet of the operation. This information can be found on the Utah Water Rights website at [www.waterrights.utah.gov](http://www.waterrights.utah.gov). Please state whether an agreement exists with the water rights owner, Jerry V. Larsen, in regards to the potential disruption of the Hunt's Rock Spring. Finally a watershed map is needed to verify the hydrology calculations on page 93. The criteria for the detention basin may be accurate but there is no way to verify the acreages of watershed that may contribute to the basin.



Please provide a description of the manner and extent to which drainages will be re-established. The only reference in the plan is on the 'Future Stormwater Flow Figure' which says, "waterways are graveled". This is not standard engineering practice for restoring drainages.

Please provide the hydrologic calculations for the detention basin (for both the existing basin and as well as post mining basin). Include such factors as capacity, expected runoff volumes, sizing, etc.

109.2 Impacts to threatened or endangered species and their critical habitat

LAST REVIEW COMMENT:

*Please provide a list of threatened or endangered species that could potentially inhabit the permit area and a discussion regarding the likelihood (or lack thereof) of each species inhabiting the site. Include in this discussion the critical habitat needs of the species (the Utah Division of Wildlife Resources can provide this information).*

RESPONSE COMMENT:

This comment is adequately addressed.

109.3 Impacts to soil resources

LAST REVIEW COMMENT:

*Discuss the continued impacts to soil resources. Currently you state that 44 acres of potentially 141.87 acres have been disturbed by your operation. Impacts from mining on the additional 90-plus acres need to be addressed. Note, impacts from mining are significantly different than impacts from agriculture.*

RESPONSE COMMENT:

This comment is adequately addressed.

109.4 Impacts to slope stability, erosion control, air quality and safety

LAST REVIEW COMMENT:

*Final slope angles may not exceed 1h:1v or 45 degrees. The plan submitted in 2008 says that slope angles will be adjusted if it is determined a 1H:1V slope is unsafe. What criteria will be used to determine if the slope is unsafe? Rock-fall hazards should be included in any slope stability study?*

*Please discuss impacts caused by erosion and impacts to air quality (fugitive dust).*

RESPONSE COMMENT:

The response indicates that final slopes will be 50% (1h:1v). A 1h:1v slope is a 100% slope. Also it is mentioned that there will be areas where the slope will be steeper. Please note, to leave slopes steeper than 1h:1v, a variance will need to be requested and approved. Part of the variance request will require an engineered slope stability analysis demonstrating long-term stability.

The plan also indicates that "small 2' to 3' staggered and non continuous waterways will be cut at right angles to the grade". Please provide more detail on these waterways including all dimensions (width, depth, and length) as well as vertical and horizontal spacing. Describe the equipment that will be used that can work on a 1h:1v slope.



Please provide details on the sizing for the rock catchment that will be at the toe of the slope. Will it be a trench, berm, or bench? Provide a typical cross section of this structure.

109.5 Actions to mitigate impacts

LAST REVIEW COMMENT:

*Please provide plans to mitigate the impacts listed above. Reference to sections of the NOI where detailed plans may be located is acceptable (i.e. Fugitive dust control plan, Air Quality Approval Order, Storm water control plan, Water Discharge Permits, Reclamation plan, letters from other Agencies, etc.).*

RESPONSE COMMENT:

While it appears the plan contains most of the mitigation plans (although some are incomplete – see review comments in other sections), the reviewer had to hunt to find them. Please provide a reference to the location of all the mitigation plans, permits or letters from other agencies, regarding impact assessment and mitigation plans under this heading.

**R647-4-110 - Reclamation Plan**

110.1 Actions Current & post mining land use

LAST REVIEW COMMENT:

*Please incorporate the land use information into the NOI.*

*It is apparent that the intended post mining land use for this area is urban development. Before the Division will approve this alternative post mining land use, you will need to demonstrate that all local ordinances and zoning requirements are met, development plans are approved, and building permits are issued. This generally cannot occur until mining is completed or nearly so. You will also need to demonstrate how the proposed 1h:1v highwall slope is compatible with this use.*

*Until the alternative post mining land use is approved, the plan needs to show how the site will be returned to the pre-mining land use of grazing*

RESPONSE COMMENT:

While there has been removal of sand/gravel for decades, wildlife habitat is certainly a part of the pre-mining land use and needs to be included in the land use discussion.

As previously mentioned, urban development is not a guarantee. Until zoning, subdivision plans, and building permits are approved and issued, the Division cannot approve this land use change. It is expected that the area will be reclaimed to open space suitable for grazing and wildlife. If the several permits are issued prior to reclamation, you may request a change in the post mining land use by submitting an amendment at that time.

Please explain the comment that “several areas may need to be mined and reclaimed multi times to reach final grades.” Where are these areas located?



110.2 Reclamation of roads, highwalls, slopes, leach pads, dumps, etc.

LAST REVIEW COMMENT:

*Please provide specific plans on how 1h:1v slopes will be revegetated. Include in the plan soil replacement, soil amendments needed, and surface stabilization (i.e. use of mulch, tackifiers, etc.).*

RESPONSE COMMENT:

The above comment was not addressed.

The NOI contains a discussion regarding the use of roads for general access, firebreaks and firefighting, etc., and says the surety calculations provide for reclamation of approximately 2 acres of road, but most of the roads "outside the disturbed area", such as the perimeter roads, will remain. Roads "outside the disturbed area" that are not part of the mining operations are not under the Division's jurisdiction, so the Division does not require that they be reclaimed. The only roads "outside the disturbed area" that may fall under Division regulation are those constructed to access the site. Reclamation of these roads may be required, pending the use or need for the roads for post mining land use plans. All roads within the disturbed area (generally these are haul roads and access roads to pits, stockpiles, working areas, etc.) are expected to be reclaimed. Please provide plans to reclaim all interior roads. At the time of reclamation, if it is demonstrated that certain roads are needed for an approved post mining land use, reclamation of these roads would then not be required. A description of all roads within the disturbed area is needed, which includes width, length, grade, construction methods (bladed, cut/fill, etc.) and surfacing (i.e. graveled, paved, etc.).

110.3 Surface facilities to be left.

LAST REVIEW COMMENT:

*The NOI indicates that only a fence at the top of the final slope will be left. Please provide plans for reclaiming all other facilities, including all roads, pads, dumps, and removal of all buildings and structures, or demonstrate how these facilities are needed for the post mining land use of grazing.*

RESPONSE COMMENT:

Include in the surety calculation costs of maintaining/repairing the fence to assure it will function as intended. This section does not refer to reclamation plans for all other facilities but states that all equipment and buildings are portable and easily relocated. Costs for removing these items must be included in the surety calculation. Finally, it states that no other facilities will remain and all areas will either be sloped and revegetated as urban open space or incorporated into urban development. Urban use is not the approved plan. The reclamation plan is to demonstrate that all areas will be sloped and revegetated to meet the approved post mining land use of grazing and wildlife habitat. Once an alternative post mining land use is submitted and approved (refer to comments under R647-4-110.1), the Division can consider the revegetation plan to meet urban development.

NEW COMMENT:

Please provide a detailed description of the regional detention basin that will be left as part of the post mining land use. This description needs to include the dimensions, capacity, cross-sections of



the embankments, inlet and outlet design, etc. Water impounding structures can be left only if they are shown to have a sound hydrologic design and are needed to for, or will benefit the post mining land use. This demonstration needs to be provided.

110.4 Treatment, location and disposition of deleterious materials.

NEW COMMENT:

The fuel storage area may be contaminated and thus be considered deleterious material. Also, any used asphalt that may be removed due to road/pad reclamation would also be considered as such. Please describe how these materials will be handled and disposed of.

110.5 Revegetation planting program

LAST REVIEW COMMENT:

*Please provide a revegetation plan(s) for the entire area that will be affected by the mining operation. This plan must include at a minimum: soil replacement (and depth), soil amendments and fertilizers, if needed (note, until the soils information requested under R106-4-5 is provided, this cannot be completed), seedbed preparation, seed mix(es) to be used (include species and rate of seeding as pounds pure live seed per acre), the use of mulch, tackifier, or other surface stabilization as needed, method(s) of seeding, and timing (late fall is usually best time to seed for revegetation success).*

*Please provide a reclamation map showing where different treatments, seed mixes, etc., will be used. As stated earlier, until the alternative post mining land use of urban development is approved, the plan needs to show reclamation of the entire area to restore the pre-mine use of grazing. This map should also show what areas that will be reclaimed on an annual basis as the operation progresses.*

*The proposed seed mix (provided by John Swain) does not meet the requirements to establish a diverse and permanent vegetation cover capable of meeting the post mining land use needs. Attached is a recommended seed mix that was designed to provide a permanent, diverse vegetation cover capable of meeting the post mining land use needs.*

RESPONSE COMMENT:

For the most part, this section has not been addressed, or is incomplete. A suitable seed mix has been provided, but until the soils data is provided, an analysis of the soil suitability, depth for replacement, and fertilizer/amendment needs cannot be assessed. Timing for seeding was not discussed, nor was the need/use of mulches, tackifiers, or other soil stabilization.

The map requested in the second paragraph was not provided.

The seed mix provided in appendix f-9 is acceptable.

NEW COMMENTS:

Ripping needs to be done on the contour, not perpendicular to the slope. Broadcast seeding is preferred, however, if hydro-seeding is used, make sure the operation is done in two phases, with the seed being sprayed on in step one and the mulch applied afterward (step 2). Also, please



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provide details as to the type of hydromulch to be used, and the rate of mulch and tackifier to be applied.

**R647-4-113 – Surety**

**LAST REVIEW COMMENT:**

*The operator has not provided sufficient detail to adequately calculate the cost of reclamation. However, the operator did provide a general cost estimate for reclamation (of \$348,546). This amount should be posted as an interim surety. The final amount will be determined once the Division has sufficient detail in the reclamation plan. The operator will then need to adjust the surety (up or down) to comply with the final calculated amount.*

**RESPONSE COMMENT:**

A reclamation cost estimate was provided, but does not have the necessary detail to verify amounts of materials needed or moved, or unit costs. The basis for assumptions made are not documented. Columns are not labeled (which would provide some clarity). Attached is the Division's reclamation cost estimate worksheet. Please contact Wayne Western (801) 538- 5263 if you need assistance in completing this worksheet.

Attachments: Vegetation data  
Reclamation Cost estimate worksheet



### Vegetation summary:

During the growing season of 2007, studies were performed to ascertain the vegetation characteristics of an area on the western flank of Long Bench in Township 7 North, Range 1 & 2 West, SLBM. This area has been impacted by intensive agriculture and sand/gravel operations for many years. Under current regulation, several of the gravel pits now require a mining permit from the State. This vegetation characterization is for the purposes of meeting permitting requirements for the mining operations.

### Methods:

While there is very little area that has not been impacted by past mining and/agriculture, several areas were identified that were considered well on the way to recovery. 10 transects of 100 feet in length were randomly located in these areas to determine species composition and percent ground cover of vegetation, litter, rock, and bare ground.

### Results:

Average ground cover of the vegetation as a result of this study was 46%. Bare ground averaged 2%, with rock and litter averaging 52%.

Common species observed during the study included: Bluebunch wheatgrass, sandberg's bluegrass, purple three awn, sand dropseed, intermediate wheatgrass, bulbous bluegrass, Arrowleaf balsamroot, mountain sagebrush, rabbitbrush, and bitterbrush. Major weed species included cheatgrass and dyer's woad.